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November 30, 1999

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FEDERAL COMMUNICATIONS COMMISSION
OFFICE OF THE SECRETARY

BY HAND

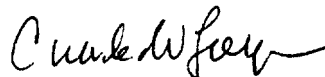
Magalie Roman Salas, Secretary
Federal Communications Commission
445 Twelfth Street, S.W. - Suite TW-A325
Washington, D.C. 20554

Re: WT Docket No. 99-168
Written Ex Parte Presentations
Service Rules for the 746-764 and 776-794 MHz Bands,
And Revisions to Part 27 of the Commission's Rules

Dear Ms. Salas:

Transmitted herewith for filing in the above-referenced proceeding are two copies of a written *ex parte* presentation. This presentation was made by FreeSpace Communications to the National Coordination Committee at its November 18-19 meeting in New York City.

Sincerely,



Charles W. Logan

Enclosure

cc:	James Schlichting	Kathleen Ham
	Kris Monteith	Stanley Wiggins
	Tom Stanley	Ari Fitzgerald
	Mark Schneider	Bryan Tramont
	Peter Tenhula	Adam Krinsky
	Robert Pepper	Howard Shelanski
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FreeSpace Communications

Presentation to the National Coordination Committee

November 18-19, 1999

Agenda

- Introduction to FreeSpace Communications
- How the FreeSpace Plan Provides Strong Protection to Public Safety Systems
- Opportunities for Public Safety Data Communications

FreeSpace Communications is an Emerging Provider of Broadband Wireless Data Services

- FreeSpace provides a competitive alternative to DSL and cable modem internet access
 - FreeSpace can achieve significant cost advantages over competing broadband technologies and pass this savings on to consumers
- FreeSpace technology delivers up to 2Mb/s to the end user
- FreeSpace's primary market is residential internet access

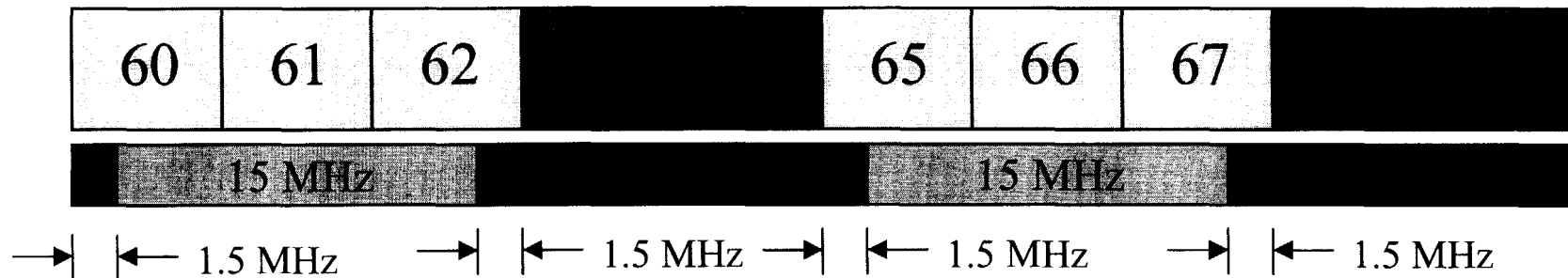
FreeSpace has a Highly Skilled Team of Leading Computer Scientists and RF Engineers

- Dr. Paul Michael Farmwald
 - Successful entrepreneur
 - MIPS, Rambus, Chromatic Research, Epigram (acquired by Broadcom)
 - Leading expert in CS and EE
- Professor Thomas H. Lee
 - Professor of Electrical Engineering at Stanford University
 - Preeminent in radio-frequency (RF) integrated circuit research
- Dr. Derek K. Shaeffer and Dr. Arvin R. Shahani
 - Doctorates in Electrical Engineering from Stanford University
 - Widely recognized for radio-frequency (RF) integrated circuit research

FreeSpace's Strong Team of Advisors

- Bruce Dunlevie
 - Founder and General Partner, Benchmark Capital
- Professor Donald C. Cox
 - Professor of Electrical Engineering at Stanford University
 - Widely regarded as one of the fathers of the cell phone system
- Charles Perkins
 - Research Scientist at Nokia, Inc.
 - One of the principle authors of the Mobile Internet Protocol
- Bud Taddiken
 - VPE of Microtune, Inc.
 - Responsible for Microtune's single-chip TV tuner

FreeSpace Communications' Channels 60-69 Proposal



License four 1.5 MHz, paired channels *with strict power spectral density limits* for innovative, low power commercial uses that protect public safety bands:

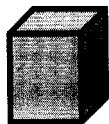
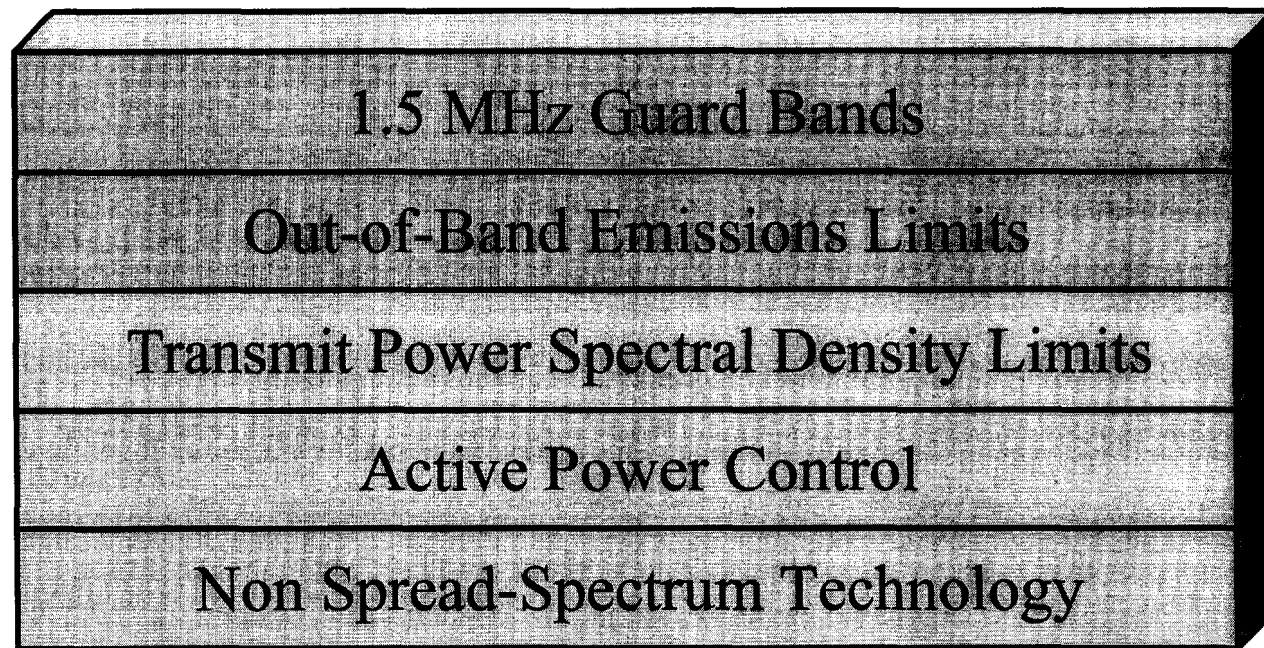
■ 4mW/kHz ■ > 4mW/kHz

■ Public Safety

License remaining 30MHz for high power mobile and fixed wireless services:

■ Commercial mobile & fixed wireless services

The FreeSpace Proposal Provides Multiple Levels of Interference Protection



Measures Proposed by FreeSpace and Motorola

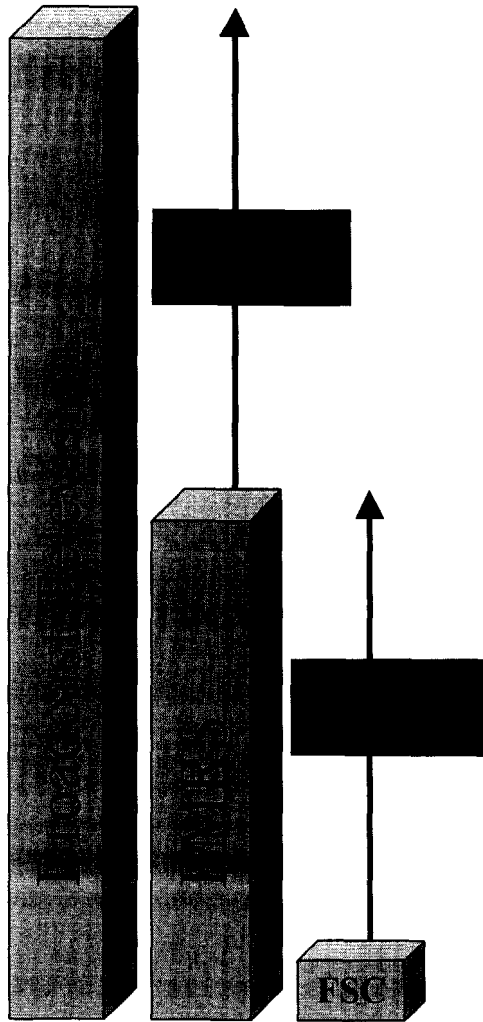


Additional Measures Proposed by FreeSpace

FreeSpace Proposes at least a 1.5MHz Guard Band from High Power Systems

- Low-power guard bands provides a buffer between public safety and high-power mobile and fixed transmissions
- Guard band spectrum is ideally suited for low-power commercial services

Strict Power Spectral Density Limits

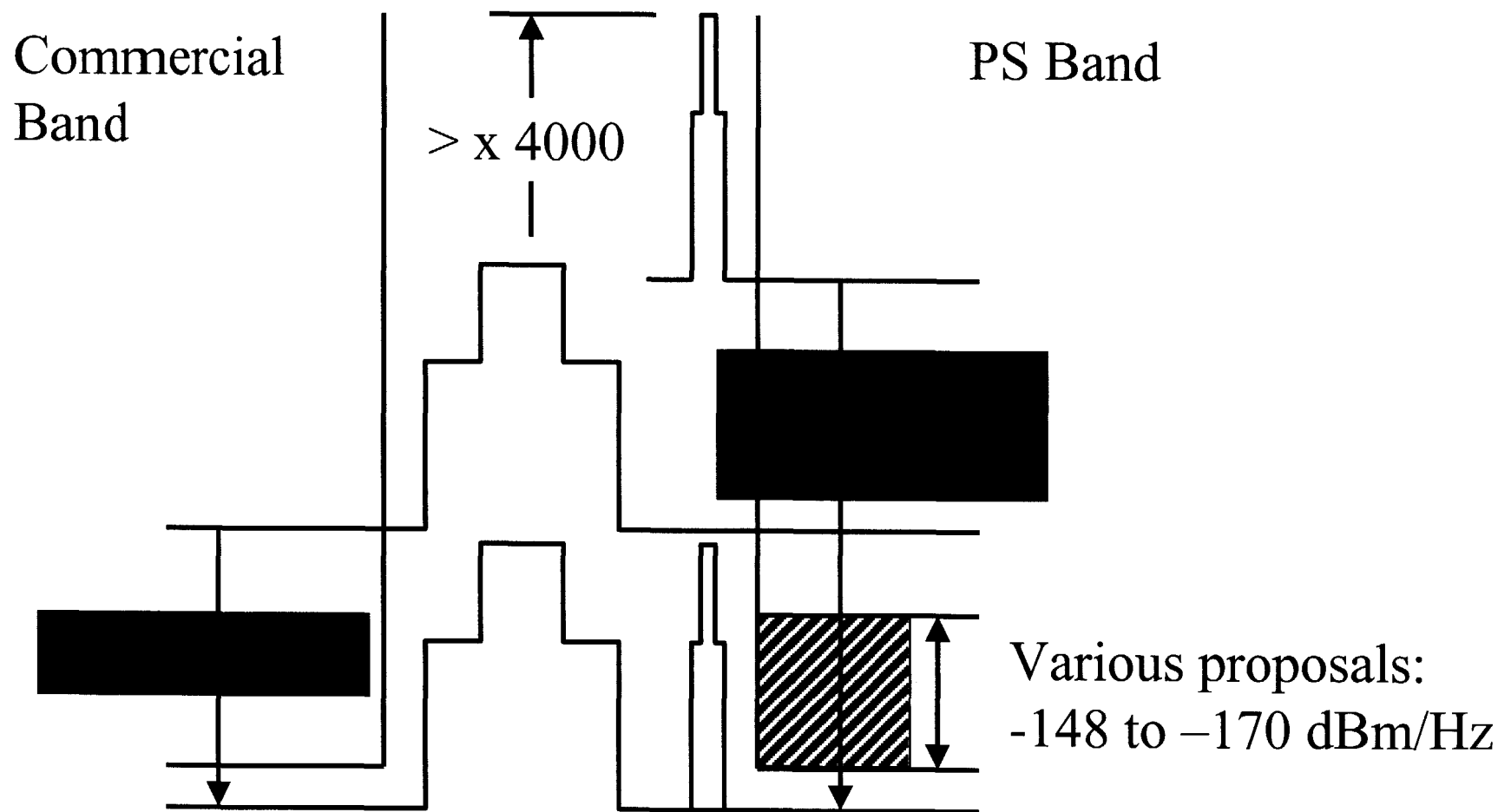


- Limits maximum in-band transmit power
- Prevents the concentration of transmit power into narrow channel bandwidths
- Encourages broadband data channels

Strong Out-of-Band Emissions Limits

- Very effective mechanism to specify suppression of signals into adjacent bands
- Equipment can be measured to guarantee that strong out-of-band emissions limits have been met
- Strict out-of-band emissions limits force manufacturers to back away from the band edge, moving them further away from public safety

Advantages of Low-Power Limits with Specific Out-of-Band Emissions Requirements



Active Power Control

- Limits the interference range of transmitting units by ensuring that minimum power is used to communicate
 - Essential to maximize the efficient use of scarce spectral resources
- Co-channel and adjacent channel interference are dramatically reduced by lowering transmit power
- Power control on *bases and mobiles* in the guard bands

Additional Measures of Protection

- Restrict the use of direct sequence spread spectrum modulation
 - Prevents aggregate interference from multiple, simultaneous transmitters
- Knowledge of base station's positions and networked equipment facilitates cooperation with public safety to address interference concerns
 - Dynamic frequency assignment allows specified channels to not be used
 - Networked equipment is controlled by FreeSpace

Public Safety and FreeSpace Technology

- FreeSpace technology is well suited for broadband data services
- FreeSpace provides a wireless extension to the Internet
- The Internet is the most generally useful data communications network in existence

FreeSpace Technology Can Potentially Meet Public Safety Requirements

- **Priority Access**
 - System supports priority levels for QoS
 - Can use a special priority class for public safety
- **Security**
 - Encryption is used on all channels
- **Reliability**
 - Highly redundant and flexible
- **Ubiquitous Coverage**
 - Guard bands serve urban and other low-power uses
 - Low band serves rural uses with much higher power

Additional Benefits

- Wireless data and voice
 - Rates of up to 2Mbps will be supported
 - Voice can be transported using voice over IP
- Event channels
 - In consumer parlance, these are called “chat groups”
 - Multicast allows dispatch communication
- Provides an “off-network” capability
 - Protocols can support peer-to-peer communications
- Economies of scale
 - Low cost infrastructure and user equipment from consumer volumes

Summary

- FreeSpace's proposed band plan provides clear and effective protection to current *and future* public safety operations
- FreeSpace can operate a low-power commercial service in guard band spectrum neighboring public safety
- FreeSpace is eager to work with public safety to ensure protection and define areas of mutual interest

End

Presentation to the National Coordination Committee

November 18-19, 1999